Patent Claims:

1. Electronic control unit (14) for the connection to a hydraulic unit (13) by way of a magnetic plug, in particular in motor vehicle brake systems, comprising
   - a zone formed of housing walls (14') for the accommodation of several valve coils (12) arranged in this zone,
   - a housing cover (8, 35),
   - at least one first printed circuit board (31, 5) for the accommodation of electric and/or electronic components and an electrical contacting, and
   - a first heat-conducting plate (9, 32) for the dissipation of heat of the electronic components,

   c h a r a c t e r i z e d in that the first heat-conducting plate is planarly connected to the first printed circuit board, and in that at least one thermal connecting element (4, 15) is provided, which constitutes a thermal bridge between the first printed circuit board(s) and the first heat-conducting plate(s).

2. Electronic control unit as claimed in claim 1, c h a r a c t e r i z e d in that at least one valve coil or all of the valve coils is/are connected electrically and/or mechanically to an additional printed circuit board (5) or an additional heat-conducting plate (32).

3. Electronic control unit as claimed in claim 1 or 2,
c h a r a c t e r i z e d in that at least one or all of the valve coils is/are connected mechanically to the first heat-conducting plate (9).

4. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that thermal connecting elements (4, 15) are used to provide an electrical connection between the printed circuit boards.

5. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that the first heat-conducting plate is welded to the cover and/or the housing (14).

6. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that the coils are mechanically elastically attached to the additional heat-conducting plate.

7. Electronic control unit as claimed in at least one of claims 2 to 6,
c h a r a c t e r i z e d in that the additional printed circuit board (5) is used for the electrical connection of the coils and more particularly for the electrical connection of

pressure sensors.

8. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that the coil housings have a honeycomb structure.

9. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that the controller housing is connected to a hydraulic valve block (13), and the controller wall (14') is sealed by means of a circumferential groove (58) provided in the valve block, in particular with at least two chambers (47), and a molecular bond is established by way of the groove after joining of the electronic control unit and the valve block.

10. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that the cover (8) comprises recesses through which a metal part used for cooling exits to the outside.

11. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that the cover (35) is made of any metal such as aluminum in particular.

12. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that metal pins (66)

are employed for cooling integrated electronic power components, which are thermally connected to one of the heat-conducting plates.

13. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that additional boards (36) are provided, which are electrically connected to the printed circuit board.

14. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that a pressed frame or pressed screen (37) is provided, which is mounted for mechanically and/or electrically contacting the coils, with the pressed frame or the pressed screen being mechanically connected especially to the controller housing in a tight manner, and with the pressed frame or the pressed screen including in particular press-in contact pins which establish an electrical connection with the printed circuit board, while the coils are elastically held.

15. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that an additional heat-conducting plate is connected in molecular bond, operatively or positively to the cover (8, 35), which latter is thermally connected to the printed circuit board and/or a heat-conducting plate (9) by way of a heat contact element (41, 42).

16. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that an aluminum plate (31) which ensures thermal connection of the heat-conducting plate is cemented to the metallic heat-conducting plate (9), which latter is not composed of aluminum.

17. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that the cover (35) is attached to the housing wall (14') by way of a molecular bond which comprises two troughs (47).

18. Electronic control unit as claimed in at least one of the preceding claims,
c h a r a c t e r i z e d in that an additional board (51) is electrically and mechanically connected to the printed circuit board by way of at least one contact element (52), with the contact element being connected by means of a press-in contact (53) especially on one side and by means of a SMD contact (54) on the other side.

19. Pump-driving unit (18) for an electronic control unit which is connected especially to a hydraulic unit (HCU) as claimed in at least one of the preceding claims, comprising an electric motor driving a driving axle,
c h a r a c t e r i z e d by a motor base plate (22) accommodating the electronic power components

of the motor.

20. Pump-driving unit as claimed in claim 19, c h a r a c t e r i z e d in that the motor base plate (22) is in thermal contact with the hydraulic block (HCU) by way of a deformable heat-conducting element (21).

21. Pump-driving unit as claimed in claim 19 or 20, c h a r a c t e r i z e d in that a rod-shaped motor plug is adapted to be plugged into the motor base plate or into a bushing (25) arranged thereon in order to provide an electrically conductive connection.

22. Method of manufacturing an electronic control unit (14), in particular as claimed in at least one of claims 1 to 18, c h a r a c t e r i z e d by the steps of:

- providing a frame made up of housing walls (14') that defines a coil accommodation zone,
- inserting a printed circuit board assembly (31, 9, 3) in a zone predetermined by the frame, and elements (56) are provided to fix the printed circuit plate assembly to the frame,
- mounting a cover (8) onto the assembly, with the cover comprising holding elements (57) which provide fixation of the printed circuit board assembly when the cover is mounted.

23. Method as claimed in at least one of claims 1 to 18 or claim 21,
c h a r a c t e r i z e d in that the cover is connected to the housing using a friction welding method.

24. Electrohydraulic control device comprising a mounting frame for electric valve coils (12) which is in particular substantially made of plastics, a strip conductor carrier with at least one semiconductor element producing thermal energy and at least one planar cooling element (9), especially a cooling plate, a hydraulic block connected to the mounting frame and having valve domes of magnetically drivable hydraulic valves that project from a surface of the hydraulic block, the hydraulic valves being arranged inside the hydraulic block,
c h a r a c t e r i z e d in that one or more elongated heat-conducting elements (172) are provided, which are in contact with the hydraulic block (13) and to the cooling element (9) to form a thermal bridge so that a heat flow is enabled between hydraulic block and cooling element, and a longitudinal side of the heat-conducting elements (172) is operatively or positively connected to the hydraulic block or the cooling element (9), and in each case their opposed longitudinal sides (1712) bear planarly against the hydraulic block or the cooling element without the operative connection in a detachable manner.

25. Electrohydraulic control device according to the preamble of claim 24,
c h a r a c t e r i z e d in that one or more hollow elongated heat-conducting elements (1714) are provided which are in contact with the hydraulic block and the cooling element (9) for forming a thermal bridge so that a heat flow is enabled between hydraulic block and cooling element, and the **(controller housing)*** is operatively connected to the hydraulic block and the cooling element using a bolt that extends through the heat-conducting element or a screw (1713).

26. Electrohydraulic control device as claimed in claim 24 or 25,
c h a r a c t e r i z e d in that displaceable valve coils (12) encompassed by the mounting frame are provided, which enclose the valve domes and are displaceable in an axial direction, i.e. in the direction of the longitudinal axes of the valve domes, and elastomeric members (176) are disposed in an area between an abutment surface of the mounting frame for the valve coils, which members are compressed by axial displacement of the valve coils when the mounting frame and the hydraulic block are joined, and planar holding elements are provided between the elastomeric members and the valve coils being so configured that, in the condition not compressed by the valve coils, drop-out of the coils from the mounting frame is prevented by an abutment surface (1720),

with the planar holding elements bearing against the abutment surfaces only in the mentioned uncompressed condition.

27. Electrohydraulic control device as claimed in at least one of claims 24 to 26,
c h a r a c t e r i z e d in that a friction-welded cover (8) closes the accommodation of the electronics of the controller (14).

28. Electrohydraulic control device as claimed in at least one of claims 24 to 27,
c h a r a c t e r i z e d in that the heat-conducting elements are attached to the planar cooling element by a wedging operation.

29. Electrohydraulic control device as claimed in at least one of claims 24 to 28,
c h a r a c t e r i z e d in that it includes the features according to at least one of claims 2 to 18.